

Claims

1. A warning system for providing a warning indication to a driver of a vehicle having an engine, the warning device including:
- 5 a power position detection device for detecting a vehicle power position,
- a gear shift position detection device for detecting a vehicle gear shift position,
- 10 an alighting detection device for detecting the driver's preparations for alighting from the vehicle, and
- a power position warning device for outputting a power position warning indication when the power position detection device, the gear shift position detection device and
- 15 the alighting detection device detect that there are preparations for alighting, that the gear shift position is in a P (Park) range and that the power position is in a position other than showing IGNITION OFF.
2. The warning system as claimed in claim 1, wherein the power position warning
- 20 device is operable to output the power position warning indication until the vehicle power position is moved to a position that locks engine ignition.
3. The warning system as claimed in claim 1, wherein the power position warning device is operable to output the power position warning indication until the vehicle power position is moved to a position indicating IGNITION OFF.
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4. The warning system as claimed in claim 1, wherein the power position warning device is operable to cancel the power position warning indication if it is detected that the gear shift position has become a position other than in the P (Park) range or if it is detected that an engine start operation has been carried out.

5. The warning system as claimed in claim 1, including a gear shift position warning device for outputting a gear shift position warning indication of forgetting to return to a gear shift position in the P (Park) range when the engine is stopped, in response to a result of the detection by the power position detection device and the gear shift position detection device.

6. The warning system as claimed in claim 5, wherein the alighting detection device is operable to detect that the driver is preparing to alight from the vehicle when the gear shift position becomes a gear shift position in the P (Park) range during the gear shift position warning indication.

7. The warning system as claimed in claim 5, wherein the gear shift position warning device is operable to continue the gear shift position warning indication until the gear shift position is moved into a position in the P (Park) range or it is detected that an engine start operation has been carried out.

8. The warning system as claimed in claim 5, wherein the gear shift position warning device is operable to output the gear shift position warning indication when the gear shift position is other than in the P (Park) range and the vehicle power position has moved from a position in which the engine is running to a position in which the engine is not running.

9. The warning system as claimed in claim 5, wherein the gear shift position warning indication is provided by a visual and/or audible warning indication.

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10. The warning system as claimed in claim 1, wherein the alighting detection device is operable to detect that the driver is preparing to alight from the vehicle when a lock on a seat belt for the driver is released.

11. The warning system as claimed in claim 1, wherein the alighting detection

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device is operable to detect that the driver is preparing to alight from the vehicle when a door on a driver's side of the vehicle is opened.

12. The warning system as claimed in claim 1, wherein the power position warning  
5 indication is provided by a visual and/or audible warning indication.

13. A warning system for providing a warning indication to a vehicle driver, the warning device including:

10 a power position detection device for detecting a vehicle power position,

a gear shift position detection device for detecting a vehicle gear shift position,

a gear shift position warning device for outputting a gear shift position warning  
15 indication of forgetting to return to a gear shift position in a P (Park) range when the engine is stopped, based on a result of the detection by the power position detection device and the gear shift position detection device, and

a power position warning device for outputting a power position warning indication  
20 when the gear shift position detection device detects that the gear shift position has moved to the P (Park) range during output of the gear shift position warning indication.

14. The warning system as claimed in claim 13, wherein the power position warning device is operable to output the power position warning indication until the power  
25 position is moved to a position that locks engine ignition.

15. The warning system as claimed in claim 13, wherein the power position warning device is operable to provide the power position warning indication until the power position is moved to a position showing IGNITION OFF.

16. The warning system as claimed in claim 13, wherein the power position warning device is operable to cancel the power position warning indication if it is detected that the gear shift position has become a position other than in the P (Park) range or if it is detected that an engine start operation has been carried out.

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17. A method for providing a warning indication to a vehicle driver, the method including:

detecting a vehicle power position,

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detecting a gear shift position,

detecting the driver's preparations for alighting from the vehicle, and

15 outputting a power position warning indication when it is detected that there are preparations for alighting, that the gear shift position is in a P (Park) range and that the power position is in a position other than showing IGNITION OFF.

18. A method for providing a warning indication to a vehicle driver, the method  
20 including:

detecting a vehicle power position,

detecting a vehicle gear shift position,

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outputting a gear shift position warning indication of forgetting to return to a gear shift position in a P (Park) range when the engine is stopped, based on a results of the detection of the vehicle power position and detection of the vehicle gear shift position, and

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outputting a power position warning indication when the gear shift position has moved to the P (Park) range during output of the gear shift position warning indication.

19. A warning system for providing a warning indication to a vehicle driver, the  
5 warning device including:

power position detection means (20) for detecting a vehicle power position,

10 gear shift position detection means (60, 61) for detecting a vehicle gear shift position,

alighting detection means (20) for detecting the driver's preparations for alighting from the vehicle, and

15 power position warning means (20) for outputting a power position warning indication when the power position detection means (20), the gear shift position detection means (60, 61) and the alighting detection means (20) detect that there are preparations for alighting, that the gear shift position is in a P (Park) range and that the power position is in a position other than showing IGNITION OFF or the like.

20 20. The warning system as claimed in claim 19, wherein the power position warning means (20) is operable to output the power position warning indication until the power position is moved to a position that locks engine ignition.

21. The warning system as claimed in claim 19 or claim 20, wherein the power position warning means (20) is operable to output the power position warning  
25 indication until the vehicle power position is moved to a position indicating IGNITION OFF or the like.

22. The warning system as claimed in any one of claims 19 to 21, wherein the power position warning means (20) is operable to cancel the power position warning indication  
30 if it is detected that the gear shift position has become a position other than in the P

(Park) range or if it is detected that an engine start operation has been carried out.

23. The warning system as claimed in any one of claims 19 to 22, including gear shift position warning means (20) for outputting a gear shift position warning indication  
5 of forgetting to return to a gear shift position in the P (Park) range when the engine is stopped, based on a result of the detection by the power position detection means (20) and the gear shift position detection means (60, 61).

24. The warning system as claimed in claim 23, wherein the alighting detection  
10 means (20) is operable to detect that the driver is preparing to alight from the vehicle when the gear shift position becomes a gear shift position in the P (Park) range during the gear shift position warning indication.

25. The warning system as claimed in claim 23 or claim 24, wherein the gear shift  
15 position warning means (20) is operable to continue the gear shift position warning indication until the gear shift position is moved into a position in the P (Park) range or it is detected that an engine start operation has been carried out.

26. The warning system as claimed in any one of claims 23 to 25, wherein the gear  
20 shift position warning means (20) is operable to output the gear shift position warning indication when the gear shift position is other than in the P (Park) range and the vehicle power position has moved from a position in which the engine is running to a position in which the engine is not running.

25 27. The warning system as claimed in any one of claims 23 to 26, wherein the gear shift position warning indication is provided by a visual and/or audible warning indication.

28. The warning system as claimed in any one of claims 19 to 27, wherein the  
30 alighting detection means (20) is operable to detect that the driver is preparing to alight

from the vehicle when a lock on a seat belt for the driver is released.

29. The warning system as claimed in any one of claims 19 to 28, wherein the alighting detection means (20) is operable to detect that the driver is preparing to alight  
5 from the vehicle when a door on a driver's side of the vehicle is opened.

30. The warning system as claimed in any one of claims 19 to 29, wherein the power position warning indication is provided by a visual and/or audible warning indication.

10 31. A warning system for providing a warning indication to a vehicle driver, the warning device including:

power position detection means (20) for detecting a vehicle power position,

15 gear shift position detection means (60, 61) for detecting a vehicle gear shift position,

gear shift position warning means (20) for outputting a gear shift position warning indication of forgetting to return to a gear shift position in a P (Park) range when the engine is stopped, based on a result of detection by the power position detection means  
20 (20) and the gear shift position detection means (60, 61), and

power position warning means (20) for outputting a power position warning indication when the gear shift position detection means detects that the gear shift position has moved to the P (Park) range during output of the gear shift position warning indication.

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32. The warning system as claimed in claim 31, wherein the power position warning means (20) is operable to output the power position warning indication until the power position is moved to a position that locks engine ignition.

33. The warning system as claimed in claim 31 or claim 32, wherein the power position warning means (20) is operable to output the power position warning indication until the power position is moved to a position showing IGNITION OFF.

5 34. The warning system as claimed in any one of claims 31 to 33, wherein the power position warning means (20) is operable to cancel the position warning indication if it is detected that the gear shift position has become a position other than in the P (Park) range or if it is detected that an engine start operation has been carried out.

10 35. A method for providing a warning indication to a vehicle driver, the method including:

detecting a vehicle power position,

15 detecting a gear shift position,

detecting the driver's preparations for alighting from the vehicle, and

outputting a power position warning indication when it is detected that there are  
20 preparations for alighting, that the gear shift position is in a P (Park) range and that the power position is in a position other than showing IGNITION OFF.

36. A method for providing a warning indication to a vehicle driver, the method including:

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detecting a vehicle power position,

detecting a vehicle gear shift position,



- outputting a gear shift position warning indication of forgetting to return to a gear shift position in a P (Park) range when the engine is stopped, based on the results of detecting the vehicle power position and detecting the vehicle gear shift position, and
- 5    outputting a power position warning indication when the gear shift position has moved to the P (Park) range during output of the gear shift position warning indication.